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| 09/808,684      | 03/15/2001  | Dieter Schulz        | 50626.19            | 5285             |

7590 12/18/2003  
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EXAMINER

JAMAL, ALEXANDER

ART UNIT PAPER NUMBER

2643

DATE MAILED: 12/18/2003 *11*

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/808,684

Applicant(s)

SCHULZ, DIETER

Examiner

Alexander Jamal

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4,9 and 10 is/are allowed.
- 6) ☒ Claim(s) 5-7,11 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7,8,9,10 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. It is noted that this application appears to claim subject matter disclosed in prior Application No. 0006576.3, filed March 17, 2000. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claim 5,7** rejected under 35 U.S.C. 102(e) as being anticipated by Xie et al. (5644634).

a. **Claim 5:** Xie discloses: a multi-frequency tone detector comprising:

i. Analysis filter 124 (Fig. 2) for detecting tone energies at multiple frequencies (Col 7 line 1-16).

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ii. A decision logic block to detect tone frequencies based upon the detected energy (Col 7 lines 32-45).

iii. By allowing different window sizes for each bin, the window size is chosen to be the most accurate for each bin (Col 9 lines 5-36), and each window is centered on the desired frequency (Col 11 lines 25-50) . As such, each window size would be chosen so that the adjacent ones of said tone frequencies of interest are located at the spectral nulls of the filter.

b. **Claim 7:** Xie's analysis filter is a digital filter (Col 3 lines 25-31).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claim 6** rejected under 35 U.S.C. 103(a) as being unpatentable over Xie et al. (5644634) as applied to claim 5 above, and further in view of Felder et al. (6370244)

a. **Claim 6:** Xie discloses applicant's claim 5, however Xie does not mention using a rectangular window for the analysis filter.

Felder teaches a DTMF detector implementing an analysis filter with a rectangular window with variable window size to detect energy in each frequency bin (Col 7 line 66 to Col 8 line 17). It would have been obvious to one of ordinary skill in

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the art at the time of this application to use a rectangular window in the analysis filter for the purpose of reducing the complexity of the system (Col 8 lines 11-14) while maintaining it's functionality.

b. **Claim 11:** Xie's analysis filter is a digital filter (Col 3 lines 25-31).

*Allowable Subject Matter*

1. **Claim 8** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
2. **Claims 1-4,9,10** are allowed over the prior art of record
3. The following is an examiner's statement of reasons for allowance:


The Prior art of record (6370244, 5644634) fails to teach: A multi-Frequency tone detector comprising an analysis filter for detecting the tone energies of an input signal at a plurality of tone frequencies of interest and a decision logic block for detecting presence or absence of said tone frequencies of interest based on said detected tone energies, characterized in that a total energy calculator is provided for calculating total energy of the input signal and said decision logic block detects the presence of said tone frequencies by calculating background energy as total energy minus the tone energies of said input signal at said plurality of tone frequencies of interest, and for each of said tone energies (i) calculating a roll-off signal-to-noise ratio for said analysis filter, (ii) failing any of said tone frequencies of interest for which said tone energies are less than said roll-off signal-to-noise ratio times said background energy and (iii) otherwise passing said tone frequencies; as substantially described and connected in independent **Claim 1**.

These limitations, in combination with the remaining limitations of **Claims 2-4, 9,10** are neither taught or suggested by the prior art of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 703-305-3433. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 703-305-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9315 for After Final communications.

AJ  
December 12, 2003

  
DUC NGUYEN  
PRIMARY EXAMINER